

D. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

- a. NPDES regulations at 40 CFR 122.44(d)(1)(i) require permits to include WQBELs for pollutants (including toxicity) that are or may be discharged at levels that cause, have reasonable potential to cause, or contribute to an excursion above any state water quality standard (Reasonable Potential). The process for determining Reasonable Potential and, when necessary, calculating WQBELs is intended to (1) protect the designated beneficial uses of the receiving water specified in the Basin Plan, and (2) achieve applicable Water Quality Objectives contained in the California Toxics Rule (CTR), National Toxics Rule (NTR), and the Basin Plan.
- b. NPDES regulations and the SIP provide the basis to establish Maximum Daily Effluent Limitations (MDELs).
 - (1) **NPDES Regulations.** NPDES regulations at 40 CFR 122.45(d) state, "For continuous discharges all permit effluent limitations, standards, and prohibitions, including those necessary to achieve water quality standards, shall *unless impracticable* be stated as maximum daily and average monthly discharge limitations for all discharges other than publicly owned treatment works."
 - (2) **SIP.** SIP Section 1.4 requires that WQBELs be expressed as MDELs and average monthly effluent limitations (AMELs). Since the SIP requires MDELs, not average weekly effluent limits, it is impracticable to impose average weekly effluent limits. MDELs are necessary to protect against acute water quality effects (e.g. for preventing fish kills or acute mortality to aquatic organisms).

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

The Water Quality Criteria (WQC) and Water Quality Objectives (WQOs) applicable to the receiving waters for this discharge are from the Basin Plan; the CTR, established by USEPA at 40 CFR 131.38; and the NTR, established by USEPA at 40 CFR 131.36. Some pollutants have WQC or WQOs established by more than one of these three sources.

- a. **Basin Plan.** The Basin Plan specifies numeric WQOs for 10 priority toxic pollutants, as well as narrative WQOs for toxicity and bioaccumulation in order to protect beneficial uses. The pollutants for which the Basin Plan specifies numeric objectives are arsenic, cadmium, chromium (VI), copper in freshwater, lead, mercury, nickel, silver, zinc, and cyanide. The narrative toxicity objective states in part, "all waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms." The narrative bioaccumulation objective states in part, "controllable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered." Effluent limitations and provisions in this Order are based on available information to implement these objectives.

- b. **CTR.** The CTR specifies numeric aquatic life criteria for 23 toxic pollutants and numeric human health criteria for 57 toxic pollutants. These criteria apply to all inland surface waters and enclosed bays and estuaries of the San Francisco Bay Region, although Basin Plan Tables 3-3 and 3-4 contain numeric objectives for certain toxic pollutants that supersede CTR criteria.

Human health criteria are further identified as “water and organisms” and “organisms only.” Because the receiving waters are not designated for the MUN beneficial use, the CTR criteria applicable to “organisms only” were used for the RPA.

- c. **NTR.** The NTR establishes numeric aquatic life criteria for selenium and numeric human health criteria for 33 organic pollutants for waters of San Francisco Bay upstream to and including Suisun Bay and the Sacramento River-San Joaquin River Delta. These NTR criteria apply to Boynton Slough, Ledge wood Creek, and the duck ponds.
- d. **Basin Plan Receiving Water Salinity Policy.** The Basin Plan (like the CTR and the NTR) states that the salinity characteristics (i.e., freshwater vs. saltwater) of the receiving water shall be considered in determining the applicable WQOs. Freshwater objectives apply to discharges to waters with salinities equal to or less than one part per thousand (ppt) at least 95 percent of the time. Saltwater criteria shall apply to discharges to waters with salinities equal to or greater than 10 ppt at least 95 percent of the time in a normal water year. For discharges to water with salinities in between these two categories, or tidally influenced freshwaters that support estuarine beneficial uses, the criteria shall be the lower of the salt or freshwater criteria (the latter calculated based on ambient hardness) for each substance. Receiving water salinity data collected at all receiving water stations from March 2005 through July 2008 indicate that 87% of the salinity data were greater than 1 ppt but less than 10 ppt, which the Basin Plan defines as estuarine.

The Discharger has also performed plant community studies in the Boynton Slough and Ledge wood Creek areas that indicate that the receiving waters are tidally influenced. Furthermore, all receiving waters (Boynton Slough, Ledge wood Creek, and the duck ponds) are located within the Suisun Marsh, which is specifically identified by the Basin Plan as supporting the estuarine habitat beneficial use. The Reasonable Potential Analysis (RPA) and effluent limitations in this Order are therefore based on the more stringent of the fresh and salt water criteria.

- e. **Receiving Water Hardness.** Ambient hardness values are used to calculate freshwater WQOs that are hardness dependent. Insufficient hardness data were available to calculate an adjusted geometric mean from the data collected during the term of the previous permit after the data set was censored for hardness greater than 400 mg/L and salinity greater than 1 ppt. The WQOs for this Order were therefore determined using a hardness of 268 mg/L as CaCO₃, which was calculated in the previous permit as the adjusted geometric mean of 145 data points (after censoring the original data set, collected in Boynton Slough and adjacent sloughs to eliminate samples with hardness values greater than 400 mg/L or salinity values greater than 1 ppt). Receiving water hardness data were not available for Ledge wood Creek, and because the previous permit amendment (Order No. R2-2006-0045) indicated that receiving water conditions in Ledge wood Creek are similar to those in Boynton Slough and adjacent sloughs, the same hardness assumption was made for all outfalls.

- f. **Site-Specific Metals Translators.** Because NPDES regulations at 40 CFR 122.45(c) require that effluent limitations for metals be expressed as total recoverable metal, and applicable WQOs for metals are typically expressed as dissolved metal, factors or translators must be used to convert metals concentrations from dissolved to total recoverable and vice versa. In the CTR, USEPA establishes default translators that are used in NPDES permits; however, site-specific conditions, such as water temperature, pH, suspended solids, and organic carbon, greatly affect the form of metal (dissolved, filterable, or otherwise) that is present in the water and therefore available to cause toxicity. In general, the dissolved form of the metals is more available and more toxic to aquatic life than the filterable forms. Site-specific translators can be developed to account for site-specific conditions, thereby preventing exceedingly stringent or under protective WQOs.

Regional Water Board staff developed site-specific translators for hexavalent chromium, copper, nickel, and zinc using data for dissolved and total metals collected by the Discharger in 2000 and 2001 during five sampling events. The following table shows the translators used for this Order. In determining the need for and calculating WQBELs for all other metals, default translators established by the USEPA in the CTR at 40 CFR 131.38(b)(2), Table 2, were used.

Table F-9. Site-Specific Translators

Pollutant	Site-Specific Translators	
	Acute	Chronic
Chromium VI	0.46	0.23
Copper	0.64	0.46
Nickel	0.91	0.51
Zinc	1.0	0.68

3. Determining the Need for WQBELs

NPDES regulations at 40 CFR 122.44(d)(1)(i) require permits to include WQBELs for all pollutants (non-priority and priority) “which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any narrative or numeric criteria within a State water quality standard.” Thus, assessing whether a pollutant has “Reasonable Potential” is the fundamental step in determining whether a WQBEL is required. For non-priority pollutants, Regional Water Board staff used available monitoring data, the receiving water’s beneficial uses, and previous permit limitations to determine Reasonable Potential. For priority pollutants, Regional Water Board staff used the methods prescribed in SIP Section 1.3 to determine if the discharge from the Plant demonstrates Reasonable Potential as described below in sections 3.a – 3.e.

a. Reasonable Potential Analysis (RPA)

Using the methods prescribed in SIP Section 1.3, Regional Water Board staff analyzed the effluent data to determine if the discharge from the Plant demonstrates Reasonable Potential. The RPA compares the effluent data with numeric and narrative WQOs in the Basin Plan and numeric WQC USEPA established in the NTR and CTR.

b. Reasonable Potential Methodology

Consistent with the methods and procedures prescribed in SIP Section 1.3, the RPA considers the maximum effluent concentration (MEC) for each pollutant based on existing data, while accounting for a limited data set and effluent variability. There are three triggers in determining Reasonable Potential.

- (1) The first trigger is activated if the MEC is greater than or equal to the lowest applicable WQO ($MEC \geq WQO$), which has been adjusted, if appropriate, for pH, hardness, and translator data. If the MEC is greater than or equal to the adjusted WQO, then that pollutant has Reasonable Potential and a WQBEL is required.
- (2) The second trigger is activated if the observed maximum ambient background concentration (B) is greater than the adjusted WQO ($B > WQO$) and the pollutant is detected in any of the effluent samples ($MEC > ND$).
- (3) The third trigger is activated if a review of other information determines that a WQBEL is required to protect beneficial uses, even though both MEC and B are less than the WQO. A limitation may be required under certain circumstances to protect beneficial uses.

c. Effluent Data

The Regional Water Board's August 6, 2001, letter titled *Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy* (August 6, 2001, Letter – available online; see Standard Language and Other References Available Online, below) to all permittees formally required the Discharger (pursuant to CWC Section 13267) to initiate or continue monitoring for the priority pollutants using analytical methods that provide the best detection limits reasonably feasible. Regional Water Board staff analyzed these effluent data and the nature of the Plant to determine if the discharge has Reasonable Potential. The RPA was based on the effluent monitoring data collected by the Discharger from November 2003 through July 2008 for most inorganic pollutants, and from March 2005 through March 2008 for most organic pollutants. For bis(2-ethylhexyl)phthalate, due to the Bis(2-ethylhexyl)phthalate Laboratory Analysis Study, the values prior to the study were not used for the Reasonable Potential analysis. Therefore, the RPA used data from the study from September 2006 to August 2008.

d. Ambient Background Data

Ambient background values are used to determine Reasonable Potential and to calculate effluent limitations, when necessary. For the RPA, ambient background concentrations are the observed maximum detected water column concentrations. The SIP states that for calculating WQBELs, ambient background concentrations are either the observed maximum ambient water column concentrations or, for WQOs intended to protect human health from carcinogenic effects, the arithmetic mean of observed ambient water concentrations. The Regional Monitoring Program (RMP) station located in the Sacramento River is a far-field background station that has been monitored for most of

the inorganic (CTR constituent numbers 1–15) and some of the organic (CTR constituent numbers 16–126) toxic pollutants, and these data from the RMP were used as background data in performing the RPA for this discharge.

The RMP has not analyzed all the constituents listed in the CTR. These data gaps are addressed by the August 6, 2001, Letter. The August 6, 2001, Letter formally requires Dischargers (pursuant to CWC Section 13267) to conduct ambient background monitoring and effluent monitoring for those constituents not currently monitored by the RMP, and to provide this technical information to the Regional Water Board.

On May 15, 2003, a group of several San Francisco Bay Region dischargers (known as the Bay Area Clean Water Agencies, or BACWA) submitted a collaborative receiving water study, entitled *San Francisco Bay Ambient Water Monitoring Interim Report* (2003). This study includes monitoring results from sampling events in 2002 and 2003 for the remaining priority pollutants not monitored by the RMP. The RPA was conducted and the WQBELs were calculated using RMP data from 1996 through 2003 for inorganics and organics at the Sacramento River RMP station, and additional data from BACWA's *Ambient Water Monitoring: Final CTR Sampling Update* (2004) for the Sacramento River RMP station. The Discharger may use the receiving water study provided by BACWA to fulfill all requirements of the August 6, 2001, Letter for receiving water monitoring in this Order.

e. Reasonable Potential Determination

The MECs, most stringent applicable WQOs, and background concentrations used in the RPA are presented in Table F-10, along with the RPA results (Yes or No) for each pollutant analyzed. Reasonable Potential was not determined for all pollutants, as there are not applicable WQOs for all pollutants and monitoring data are not available for others. Based on a review of the effluent data collected during the previous permit term, the pollutants that exhibit Reasonable Potential are zinc, cyanide, chlorodibromomethane, dichlorobromomethane, and total ammonia by Trigger 1; dioxin-TEQ by Trigger 2; and copper by Trigger 3.

Discharges of mercury are regulated by Regional Water Board Order No. R2-2007-0077, which became effective March 1, 2008. Order No. R2-2007-0077 is a Watershed Permit that implements the San Francisco Bay Mercury TMDL and establishes wasteload allocations for industrial and municipal wastewater discharges of this pollutant. The discharge of mercury from the Plant is therefore regulated by means other than this Order.

Table F-10. Reasonable Potential Analysis Summary

CTR #	Priority Pollutants	MEC or Minimum DL (a)(b) (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum DL (a)(b) (µg/L)	RPA Results (c)
1	Antimony	0.6	4300	0.34	No
2	Arsenic	1.2	36	3.7	No
3	Beryllium	< 0.041	No Criteria	0.126	No
4	Cadmium	0.2	2.5	0.066	No
5a	Chromium (III)	1.2	464	Not Available	No

CTR #	Priority Pollutants	MEC or Minimum DL (a)(b) (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum DL (a)(b) (µg/L)	RPA Results (c)
5b	Chromium (VI)	2.6	35	Not Available	No
6	Copper	9.2	13	9.9	Yes
7	Lead	1.1	8.5	2.3	No
8	Mercury (303d listed)	---	---	---	---
9	Nickel (303d listed) (d)	8.2	16 (8.2)	22 (3.2)	No
10	Selenium (303d listed)	4	5	0.45	No
11	Silver	0.06	2.2	0.057	No
12	Thallium	0.08	6.3	0.143	No
13	Zinc	46	90	18	No
14	Cyanide	10	2.9	0.5	Yes
15	Asbestos	No Effluent Data	No Criteria	Not Available	No
16	2,3,7,8-TCDD	< 6.4E-08	1.4E-08	6.0E-09	No
	Dioxin TEQ (303d listed)	3.02E-09	1.4E-08	4.8E-08	Yes
17	Acrolein	2	780	< 0.5	No
18	Acrylonitrile	< 0.33	0.66	< 0.02	No
19	Benzene	< 0.03	71	< 0.05	No
20	Bromoform	8.8	360	< 0.5	No
21	Carbon Tetrachloride	0.7	4.4	0.06	No
22	Chlorobenzene	< 0.03	21000	< 0.5	No
23	Chlorodibromomethane	44	34	< 0.05	Yes
24	Chloroethane	< 0.03	No Criteria	< 0.5	Ud
25	2-Chloroethylvinyl ether	< 0.1	No Criteria	< 0.5	Ud
26	Chloroform	72	No Criteria	< 0.5	Ud
27	Dichlorobromomethane	64	46	< 0.05	Yes
28	1,1-Dichloroethane	< 0.04	No Criteria	< 0.05	No
29	1,2-Dichloroethane	< 0.04	99	0.04	No
30	1,1-Dichloroethylene	< 0.06	3.2	< 0.5	No
31	1,2-Dichloropropane	< 0.03	39	< 0.5	No
32	1,3-Dichloropropylene	< 0.03	1700	Not Available	No
33	Ethylbenzene	< 0.04	29000	< 0.5	No
34	Methyl Bromide	< 0.05	4000	< 0.5	No
35	Methyl Chloride	0.4	No Criteria	< 0.5	Ud
36	Methylene Chloride	0.7	1600	< 0.5	No
37	1,1,2,2-Tetrachloroethane	< 0.04	11	< 0.05	No
38	Tetrachloroethylene	0.06	8.9	< 0.05	No
39	Toluene	3.2	200000	< 0.3	No
40	1,2-Trans-Dichloroethylene	< 0.05	140000	< 0.5	No
41	1,1,1-Trichloroethane	< 0.03	No Criteria	< 0.5	No
42	1,1,2-Trichloroethane	< 0.05	42	< 0.05	No
43	Trichloroethylene	< 0.05	81	< 0.5	No
44	Vinyl Chloride	0.09	525	< 0.5	No
45	2-Chlorophenol	< 0.7	400	Not Available	No
46	2,4-Dichlorophenol	< 0.7	790	< 1.3	No
47	2,4-Dimethylphenol	< 0.8	2300	< 1.3	No
48	2-Methyl-4,6-Dinitrophenol	< 0.6	765	< 1.2	No
49	2,4-Dinitrophenol	< 0.6	14000	< 0.7	No
50	2-Nitrophenol	< 0.6	No Criteria	< 1.3	Ud
51	4-Nitrophenol	< 0.6	No Criteria	< 1.6	Ud
52	3-Methyl 4-Chlorophenol	< 0.6	No Criteria	< 1.1	Ud
53	Pentachlorophenol	< 0.6	7.9	< 1	No
54	Phenol	< 0.6	4600000	< 1.3	No
55	2,4,6-Trichlorophenol	< 0.6	6.5	< 1.3	No
56	Acenaphthene	< 0.03	2700	0.0019	No

CTR #	Priority Pollutants	MEC or Minimum DL (a)(b) (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum DL (a)(b) (µg/L)	RPA Results (c)
57	Acenaphthylene	< 0.02	No Criteria	0.000492	Ud
58	Anthracene	< 0.02	110000	0.000389	No
59	Benzidine	< 1	0.00054	< 0.0003	No
60	Benzo(a)Anthracene	< 0.02	0.049	0.0011	No
61	Benzo(a)Pyrene	< 0.02	0.049	0.0008215	No
62	Benzo(b)Fluoranthene	< 0.02	0.049	0.0019	No
63	Benzo(ghi)Perylene	< 0.02	No Criteria	0.0012465	Ud
64	Benzo(k)Fluoranthene	< 0.02	0.049	0.000928	No
65	Bis(2-Chloroethoxy)Methane	< 0.7	No Criteria	< 10	Ud
66	Bis(2-Chloroethyl)Ether	< 0.7	1.4	< 0.3	No
67	Bis(2-Chloroisopropyl)Ether	< 0.6	170000	Not Available	No
68	Bis(2-Ethylhexyl)Phthalate (e)	1.6	5.9	0.69	No
69	4-Bromophenyl Phenyl Ether	< 0.8	No Criteria	< 0.23	Ud
70	Butylbenzyl Phthalate	0.9	5200	< 0.5	No
71	2-Chloronaphthalene	< 0.6	4300	< 0.3	No
72	4-Chlorophenyl Phenyl Ether	< 0.9	No Criteria	< 0.3	Ud
73	Chrysene	< 0.02	0.049	0.001067	No
74	Dibenzo(a,h)Anthracene	< 0.02	0.049	0.00067	No
75	1,2-Dichlorobenzene	< 0.03	17000	< 0.3	No
76	1,3-Dichlorobenzene	< 0.03	2600	< 0.3	No
77	1,4-Dichlorobenzene	0.1	2600	< 0.3	No
78	3,3 Dichlorobenzidine	< 0.6	0.077	< 0.0002	No
79	Diethyl Phthalate	< 0.6	120000	Not Available	No
80	Dimethyl Phthalate	< 0.6	2900000	Not Available	No
81	Di-n-Butyl Phthalate	< 0.6	12000	1.72	No
82	2,4-Dinitrotoluene	< 0.6	9.1	< 0.27	No
83	2,6-Dinitrotoluene	< 0.5	No Criteria	< 0.29	Ud
84	Di-n-Octyl Phthalate	< 0.7	No Criteria	Not Available	Ud
85	1,2-Diphenylhydrazine	< 0.6	0.54	0.0087	No
86	Fluoranthene	< 0.02	370	0.0034255	No
87	Fluorene	< 0.02	14000	0.0024	No
88	Hexachlorobenzene	< 0.7	0.00077	0.000109	No
89	Hexachlorobutadiene	< 0.7	50	< 0.3	No
90	Hexachlorocyclopentadiene	< 0.8	17000	< 0.3	No
91	Hexachloroethane	< 0.6	8.9	< 0.2	No
92	Indeno(1,2,3-cd)Pyrene	< 0.02	0.049	0.001317	No
93	Isophorone	< 0.5	600	< 0.3	No
94	Naphthalene	< 0.02	No Criteria	0.00681	Ud
95	Nitrobenzene	< 0.7	1900	< 0.25	No
96	N-Nitrosodimethylamine	< 0.6	8.1	< 0.3	No
97	N-Nitrosodi-n-Propylamine	< 0.6	1.4	< 0.0002	No
98	N-Nitrosodiphenylamine	< 0.6	16	< 0.001	No
99	Phenanthrene	< 0.02	No Criteria	0.003442	Ud
100	Pyrene	< 0.02	11000	0.00358	No
101	1,2,4-Trichlorobenzene	< 0.8	No Criteria	< 0.3	No
102	Aldrin	< 0.002	0.00014	0.00000404	No
103	Alpha-BHC	< 0.002	0.013	0.0003468	No
104	Beta-BHC	< 0.002	0.046	0.000118	No
105	Gamma-BHC	< 0.002	0.063	0.0010032	No
106	Delta-BHC	< 0.002	No Criteria	0.000038	Ud
107	Chlordane (303d listed)	< 0.02	0.00059	0.0003	No
108	4,4'-DDT (303d listed)	< 0.002	0.00059	0.000349	No
109	4,4'-DDE (linked to DDT)	< 0.003	0.00059	0.00092	No

CTR #	Priority Pollutants	MEC or Minimum DL (a)(b) (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum DL (a)(b) (µg/L)	RPA Results (c)
110	4,4'-DDD	< 0.002	0.00084	0.000347	No
111	Dieldrin (303d listed)	< 0.002	0.00014	0.00038	No
112	Alpha-Endosulfan	< 0.002	0.0087	0.0000571	No
113	beta-Endosulfan	< 0.002	0.0087	0.0000424	No
114	Endosulfan Sulfate	< 0.002	240	0.000284	No
115	Endrin	< 0.002	0.0023	0.00015	No
116	Endrin Aldehyde	< 0.002	0.81	Not Available	No
117	Heptachlor	< 0.003	0.00021	0.000011	No
118	Heptachlor Epoxide	< 0.002	0.00011	0.000097	No
119-125	PCBs sum (303d listed)	< 0.02	0.00017	0.0007923	No
126	Toxaphene	< 0.15	0.0002	Not Available	No
	Tributyltin	< 0.00017	0.0074	0.00214	No
	Total PAHs	< 0.02	15	0.0175332	No
	Total Ammonia (mg/L N)	2.1	2.05	0.6	Yes

Footnotes for Table F-10:

- (a) The Maximum Effluent Concentration (MEC) and maximum background concentration are the actual detected concentrations unless preceded by a "<" sign, in which case the value shown is the minimum detection level (DL).
- (b) The MEC or maximum background concentration is "Not Available" when there are no monitoring data for the constituent.
- (c) RPA Results = Yes, if MEC > WQO/WQC, B > WQO/WQC and MEC is detected, or Trigger 3;
= No, if MEC and B are < WQO/WQC or all effluent data are undetected;
= Undetermined (Ud), if no criteria have been promulgated or there are insufficient data.
- (d) Dissolved nickel values are shown in parenthesis. Comparing dissolved nickel background data to the dissolved nickel WQO does not trigger RP. Since only total nickel was measured in the effluent, the translated nickel WQO was used for that part of the analysis (similar to the other metals).
- (e) Bis(2-ethylhexyl)phthalate background data with reporting limits exceeding the water quality objective were not used in the RPA because data from concurrently collected and analyzed samples with lower reporting limits were available. In addition, only effluent data collected using clean sampling techniques was used in the RPA.

(1) Constituents with limited data. In some cases, Reasonable Potential cannot be determined because effluent data are limited or ambient background concentrations are not available. The Discharger will continue to monitor for these constituents in the effluent using analytical methods that provide the best feasible detection limits. When additional data become available, further RPA will be conducted to determine whether to add numeric effluent limitations to this Order or to continue monitoring.

(2) Pollutants with No Reasonable Potential. WQBELs are not included in this Order for constituents that do not demonstrate Reasonable Potential; however, monitoring for these pollutants is still required. If concentrations of these constituents are found to have increased significantly, the Discharger is required to investigate the sources of the increases (see Provision VI.C.2.a of this Order). Remedial measures are required if the increases pose a threat to water quality in the receiving water.

Order No. R2-2003-0072 included WQBELs for cadmium and chromium; however, because the RPA showed that discharges from the Plant no longer demonstrate Reasonable Potential for these pollutants, this Order does not retain these effluent limitations. This is consistent with State Water Board Order No. WQ 2001-16.

4. WQBEL Calculations.

a. Pollutants with Reasonable Potential

WQBELs were developed for the toxic pollutants that were determined to have reasonable potential to cause or contribute to exceedances of WQOs. The WQBELs were calculated based on appropriate WQOs and the appropriate procedures specified in SIP Section 1.4. The WQOs used for each pollutant with Reasonable Potential are discussed in Section 4.d below.

b. Shallow/Deep Water Discharge

Discharges from the Plant to Boynton Slough, Ledgewood Creek, and the duck ponds are shallow water discharges. The outfall at Discharge Point 001 is submerged under most conditions, except during extreme low tides, and the outfall at Discharge Point 005 is on the shoreline and only possibly submerged during wet weather.

c. Dilution Credit

The shallow receiving waters support biologically sensitive and critical habitats. Therefore, no dilution credit ($D=0$) was used to calculate WQBELs for most pollutants, with the exception of cyanide, which is a non-persistent pollutant that readily degrades to a non-toxic state. Cyanide attenuates in receiving waters due to both degradation and dilution. Dilution credits for cyanide for specific shallow water discharges, including that to Boynton Slough at E-001, are established in the Basin Plan. The dilution credit accounts for attenuation of cyanide in the receiving water. A dilution ratio of 4:1 ($D = 3$) has been applied in calculating effluent limitations for cyanide at E-001; however, SIP requirements for granting a mixing zone and dilution credits have not been met for the other outfalls (E-002, E-003, and E-005).

SIP Section 1.4.2.1's requirements for granting dilution credits and mixing zones for incompletely mixed discharges were addressed by the *Staff Report on Proposed Site-Specific Water Quality Objectives for Cyanide for San Francisco Bay*, prepared by the Regional Water Board dated December 4, 2006 (Cyanide SSO Staff Report). Flow Science Inc., of Pasadena, CA, completed a mixing zone study for FSSD in 2004. This study modeled the dilution characteristics of the discharge from E-001 to Boynton Slough, and showed that impacts from Fairfield-Suisun's discharge were insensitive to water-year conditions, and highly localized in Boynton Slough and the connecting reach of Suisun Slough (Cyanide SSO Staff Report, Appendix E, Page E-4).

SIP Section 1.4.2.2's mixing zone conditions are also addressed by the Cyanide SSO Staff Report, which finds:

- (1) The mixing zone does not compromise the integrity of the receiving water. The area of the mixing zone is 3.5 acres, versus the area of the receiving water, which is 35 acres (Cyanide SSO Staff Report, Appendix D, Table 1).
- (2) The mixing zone does not cause acutely toxic conditions to aquatic life passing through the mixing zone. This finding is based on analysis of the sensitivity of

receptor species to cyanide compared with the measured levels of total cyanide along the discharge gradients of shallow water dischargers. These concentrations are less than the threshold acute toxicity levels and are not anticipated to increase (Cyanide SSO Staff Report, Appendix J, Page J-5).

- (3) The mixing zone does not restrict the passage of aquatic life. Cyanide is not known to interfere with the movement of aquatic species and does not restrict the passage of aquatic life (Cyanide SSO Staff Report, Appendix J, Page J-6). Boynton Slough, the receiving water for discharge point E-001, is a dead-end slough through which there is nowhere for fish to migrate.
- (4) The mixing zone does not adversely impact biologically sensitive or critical habitats. The Cyanide SSO Staff Report, Appendix J, Page J-6, discusses this issue specifically for FSSD and finds that there no anticipated impacts to Delta Smelt habitat, or other biologically sensitive habitats.
- (5) The cyanide within the mixing zone does not produce undesirable or nuisance aquatic life. At the concentrations in question, cyanide is not known to produce undesirable or nuisance aquatic life (Cyanide SSO Staff Report, Appendix J, Page J-9).
- (6) The cyanide within the mixing zone does not result in floating debris, oil, or scum. At the concentrations in question, cyanide is not known to result in floating debris, oil, or scum (Cyanide SSO Staff Report, Appendix J, Page J-9).
- (7) The cyanide within the mixing zone does not produce objectionable color, odor, taste, or turbidity. At the concentrations in question, cyanide is not known to produce objectionable color, odor, taste, or turbidity (Cyanide SSO Staff Report, Appendix J, Page J-9).
- (8) The cyanide within the mixing zone does not cause objectionable bottom deposits. At the concentrations in question, cyanide is not known to cause objectionable bottom deposits (Cyanide SSO Staff Report, Appendix J, Page J-9).
- (9) The cyanide within the mixing zone does not cause a nuisance. At the concentrations in question, cyanide is not known to cause nuisance (Cyanide SSO Staff Report, Appendix J, Page J-9).
- (10) The mixing zone does not dominate the receiving water body or overlap a mixing zone from different outfalls. The proposed mixing zone for FSSD represents only a portion of the immediate receiving water body, as noted above, and an even smaller percentage of the larger water body, Suisun Marsh (Cyanide SSO Staff Report, Appendix J, Page J-9).
- (11) The mixing zone is not located at or near any drinking water intake (Cyanide SSO Staff Report, Appendix J, Page J-9).

The mixing zone established by Regional Water Board Resolution R2-2006-0086 stretches from the outfall in Boynton Slough to a point approximately 15,000 feet from the outfall, between receiving water monitoring points RSW-004 and RSW-005 (Cyanide

SSO Staff Report, Appendix D, Page D-6). The mixing zone was selected to be as small as practicable while meeting the conditions of SIP section 1.4.2.2. This mixing zone is based on the percent effluent modeled at that location, and does not consider degradation of cyanide. The actual cyanide attenuation at this point is therefore likely greater than that modeled.

d. Calculation of Pollutant-Specific WQBELs

(1) Copper

- (a) Copper WQC.** The site-specific chronic and acute marine WQC for copper from the Basin Plan are 6.0 and 9.4 micrograms per liter ($\mu\text{g/L}$), respectively, expressed as dissolved metal. Regional Water Board staff converted these WQC to total recoverable metal using the site-specific translators of 0.46 (chronic) and 0.64 (acute), as described in IV.C.2.g, above. The resulting chronic water quality criterion of 13 $\mu\text{g/L}$ and acute water quality criterion of 15 $\mu\text{g/L}$ were used to perform the RPA.
- (b) RPA Results.** This Order establishes effluent limitations for copper because the Basin Plan requires that limitations are established due to Reasonable Potential by Trigger 3.
- (c) Copper WQBELs.** Final WQBELs for copper, calculated according to SIP procedures (using a CV of 0.5 and no dilution credit), are an AMEL of 7.9 $\mu\text{g/L}$ and an MDEL of 15 $\mu\text{g/L}$.
- (d) Immediate Compliance Infeasible.** Statistical analysis of effluent data for copper, collected over the period of November 2003 to July 2008, shows that the 95th percentile (9.0 $\mu\text{g/L}$) is greater than the AMEL (7.9 $\mu\text{g/L}$); the 99th percentile (13 $\mu\text{g/L}$) is less than the MDEL (15 $\mu\text{g/L}$); and the mean (3.8 $\mu\text{g/L}$) is less than the long term average of the projected lognormal distribution of the effluent data set after accounting for effluent variability (5.4 $\mu\text{g/L}$). The Regional Water Board concludes therefore that immediate compliance with these final effluent limitations is infeasible.
- (e) Antibacksliding.** Antibacksliding requirements are satisfied as the previous Order did not include final effluent limitations for copper.

(2) Cyanide

- (a) Cyanide WQC.** The most stringent applicable WQC for cyanide are an acute criterion of 9.4 $\mu\text{g/L}$ and a chronic criterion of 2.9 $\mu\text{g/L}$ from Basin Plan Table 3-3 for protection of marine aquatic life in San Francisco Bay.
- (b) RPA Results.** This Order establishes effluent limitations for cyanide because the MEC (10 $\mu\text{g/l}$) exceeds the governing WQC (2.9 $\mu\text{g/L}$), demonstrating Reasonable Potential by Trigger 1.

- (c) **Cyanide WQBELs.** Final WQBELs for cyanide, calculated according to SIP procedures (using a CV of 1.0 and a dilution credit of 3.0), are an AMEL of 7.4 µg/L and an MDEL of 18 µg/L at E-001. Final WQBELs for cyanide at E-002, E-003 and E-005, calculated using a CV of 1.0 and no dilution credit, are an AMEL of 2.1 µg/L and an MDEL of 5.3 µg/L.
- (d) **Immediate Compliance Infeasible.** Statistical analysis of effluent data for cyanide collected over the period of November 2003 through July 2008 shows that, for E-001, the 95th percentile (8.5 µg/L) is greater than the AMEL (7.4 µg/L); the 99th percentile (11 µg/L) is less than the MDEL (18 µg/L); and the mean (10 µg/L) is greater than the long term average of the projected normal distribution of the effluent data set after accounting for effluent variability (3.8 µg/L). However, the 95th percentile is greater than the AMEL (2.1 µg/L), the 99th percentile is greater than the MDEL (5.3 µg/L), and the mean (10 µg/L) is greater than the long term average of the projected normal distribution of the effluent data set after accounting for effluent variability (1.1 µg/L). The Regional Water Board therefore concludes that immediate compliance with these final effluent limitations is infeasible.
- (e) **Need for Cease and Desist Order.** Since it is infeasible for the Discharger to immediately comply with WQBELs for cyanide, the Discharger will likely discharge in violation of this Order. A Cease and Desist Order will be considered for adoption concurrently with this Order to ensure that the Discharger achieves compliance.
- (f) **Antibacksliding.** Antibacksliding requirements are satisfied because the previous Order did not include final effluent limitations for cyanide.

(3) Dioxin-TEQ

- (a) **WQC.** The Basin Plan narrative WQO for bioaccumulative substances states:

Many pollutants can accumulate on particulates, in sediments, or bioaccumulate in fish and other aquatic organisms. Controllable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered.

Because it is the consensus of the scientific community that dioxins and furans associate with particulates, accumulate in sediments, and bioaccumulate in the fatty tissue of fish and other organisms, the Basin Plan's narrative bioaccumulation WQO is applicable to these pollutants. Elevated levels of dioxins and furans in fish tissue in San Francisco Bay demonstrate that the narrative bioaccumulation WQO is not being met. USEPA has therefore included Suisun Bay as impaired by dioxin and furan compounds in the current 303(d) List of waters where WQOs are not being met.

The CTR establishes a numeric WQO for 2,3,7,8-tetrachlorinated dibenzo-p-dioxin (2,3,7,8-TCDD) of 1.4×10^{-8} µg/L for the protection of human health when

aquatic organisms are consumed. When the CTR was promulgated, USEPA stated its support of the regulation of other dioxin and dioxin-like compounds through the use of toxicity equivalencies (TEQs) in NPDES permits. For California waters, USEPA stated specifically, "If the discharge of dioxin or dioxin-like compounds has reasonable potential to cause or contribute to a violation of a narrative criterion, numeric WQBELs for dioxin or dioxin-like compounds should be included in NPDES permits and should be expressed using a TEQ scheme" [65 Fed. Reg. 31682, 31695 (2000)]. This procedure, developed by the World Health Organization (WHO) in 1998, uses a set of toxicity equivalency factors (TEFs) to convert the concentration of any congener of dioxin or furan into an equivalent concentration of 2,3,7,8-TCDD. Therefore, this Order uses CTR criterion as a criterion for dioxin-TEQ.

To determine if the discharge of dioxin or dioxin-like compounds from the Plant has reasonable potential to cause or contribute to a violation of the Basin Plan's narrative bioaccumulation WQO, Regional Water Board staff used TEFs to express the measured concentrations of 16 dioxin congeners in effluent and background samples as a toxicity weighted concentration equivalent to 2,3,7,8-TCDD. These "equivalent" concentrations were then compared to the CTR numeric criterion for 2,3,7,8-TCDD (1.4×10^{-8} $\mu\text{g/L}$), thus translating the narrative bioaccumulation objective into a numeric criterion appropriate for the RPA. Although the 1998 WHO scheme includes TEFs for dioxin-like PCBs, they are not included in this Order's version of the TEF procedure because the CTR includes a specific WQC for total PCBs, which includes dioxin-like PCBs.

- (b) **RPA Results.** This Order establishes effluent limitations for dioxin-TEQ because the background concentration of dioxin-TEQ (4.8×10^{-8} $\mu\text{g/L}$) exceeds the translated Basin Plan narrative objective (the CTR numeric water quality criterion) for 2,3,7,8-TCDD (1.4×10^{-8} $\mu\text{g/L}$), and dioxin-TEQ has been detected in the effluent, demonstrating Reasonable Potential by Trigger 2.
- (c) **Dioxin-TEQ WQBELs.** WQBELs for dioxin-TEQ, calculated using SIP procedures and the CTR WQC for 2,3,7,8-TCDD as guidance (and a default CV of 0.6 with no dilution credit), are an AMEL of 1.4×10^{-8} $\mu\text{g/L}$ and an MDEL of 2.8×10^{-8} $\mu\text{g/L}$.
- (d) **Compliance Infeasible.** The Discharger's Infeasibility Study dated November 10, 2008, asserts that the facility cannot immediately comply with these WQBELs for dioxin-TEQ. With insufficient effluent data to determine the distribution of the effluent data set or to calculate a mean and standard deviation, feasibility to comply with final effluent limitations is determined by comparing the MEC (3.0×10^{-9} $\mu\text{g/L}$) to the AMEL (1.4×10^{-8} $\mu\text{g/L}$) and the MDEL (2.8×10^{-8} $\mu\text{g/L}$). Even though the MEC does not exceed the proposed final effluent limits, the Discharger asserts that the variability of dioxin-TEQ measured in the effluent results in significant uncertainty regarding whether compliance is attainable. The Regional Water Board concurs with the Discharger's assertion of infeasibility until sufficient effluent data are collected.

(e) **Need for a Compliance Schedule.** This Order includes a compliance schedule based on a new interpretation of the narrative objective as authorized by State Water Board Resolution No. 2008-0025, *Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits*, which USEPA approved on August 27, 2008. A compliance schedule will allow time for the Discharger to comply with these effluent limits, which are based on a new interpretation of a narrative objective. The final effluent limits will become effective 10 years from the effective date of this Order. The Regional Water Board may amend these limits based on new information or a TMDL for dioxin-TEQ.

(f) **Interim Effluent Limitations.** The *Policy for Compliance Schedules* requires that compliance schedules include interim limits. This Order establishes an interim limit based on the minimum levels (MLs) of all dioxin and furan congeners and their TEFs. The sum of each congener's ML times its TEF is 6.3×10^{-5} µg/L. This interim limit is established as a monthly average limit, and it will remain in effect for ten years following the effective date of this Order.

(g) **Antibacksliding.** Antibacksliding requirements are satisfied because the previous Order did not include final effluent limitations for dioxin-TEQ.

(4) Chlorodibromomethane

(a) **Chlorodibromomethane WQC.** The most stringent applicable WQC for chlorodibromomethane is the CTR criterion for protection of human health of 34 µg/L.

(b) **RPA Results.** This Order establishes effluent limitations for chlorodibromomethane because the MEC (44 µg/L) exceeds the most stringent applicable criterion (34 µg/L), demonstrating reasonable potential by Trigger 1.

(c) **Chlorodibromomethane WQBELs.** WQBELs for chlorodibromomethane, calculated according to SIP procedures (using a default CV of 0.60 with no dilution credit), are an AMEL of 34 µg/L and an MDEL of 68 µg/L.

(d) **Compliance Infeasible.** With insufficient data to determine the distribution of the data set or to calculate a mean and standard deviation, feasibility to comply with effluent limitations is determined by comparing the MEC (44 µg/L) to the AMEL (34 µg/L) and the MDEL (68 µg/L). Based on this comparison, the Regional Water Board concludes that the Plant cannot immediately comply with final WQBELs for chlorodibromomethane.

(e) **Need for Cease and Desist Order.** Since it is infeasible for the Discharger to immediately comply with WQBELs for chlorodibromomethane, the Discharger will likely discharge in violation of this Order. A Cease and Desist Order will be considered for adoption concurrently with this Order to ensure that the Discharger achieves compliance.

- (f) **Antibacksliding.** Antibacksliding requirements are satisfied because the previous permit did not contain final limitations for chlorodibromomethane.

(5) Dichlorobromomethane

- (a) **Dichlorobromomethane WQC.** The most stringent applicable WQC for dichlorobromomethane is the CTR criterion for protection of human health of 46 µg/L.
- (b) **RPA Results.** This Order establishes effluent limitations for dichlorobromomethane because the MEC (64 µg/L) exceeds the most stringent applicable criterion (46 µg/L), demonstrating reasonable potential by Trigger 1.
- (c) **Dichlorobromomethane WQBELs.** WQBELs for dichlorobromomethane, calculated according to SIP procedures (using a default CV of 0.60 with no dilution credit), are an AMEL of 46 µg/L and an MDEL of 92 µg/L.
- (d) **Compliance Infeasible.** With insufficient data to determine the distribution of the data set or to calculate a mean and standard deviation, feasibility to comply with effluent limitations is determined by comparing the MEC (64 µg/L) to the AMEL (46 µg/L) and the MDEL (92 µg/L). Based on this comparison, the Regional Water Board concludes that the Plant cannot immediately comply with final WQBELs for dichlorobromomethane.
- (e) **Need for Cease and Desist Order.** Since it is infeasible for the Discharger to immediately comply with WQBELs for dichlorobromomethane, the Discharger will likely discharge in violation of this Order. A Cease and Desist Order will therefore be considered for adoption concurrently with this Order to ensure that the Discharger achieves compliance.
- (f) **Antibacksliding.** Antibacksliding requirements are satisfied because the previous permit did not contain final limitations for dichlorobromomethane.

(6) Total Ammonia

- (a) **Ammonia WQC.** The Basin Plan contains WQOs for un-ionized ammonia of 0.025 milligrams per liter (mg/L) as an annual median and 0.16 mg/L as a maximum for Central San Francisco Bay and upstream reaches. Regional Water Board staff translated these WQOs for un-ionized ammonia to equivalent total ammonia concentrations (as nitrogen) since (1) sampling and laboratory methods are not available to analyze for un-ionized ammonia and (2) the fraction of total ammonia that exists in the toxic un-ionized form depends on the pH, salinity, and temperature of the receiving water. To translate the Basin Plan un-ionized ammonia objectives, Regional Water Board staff used the following equations to determine the fraction of total ammonia that would exist in the toxic, un-ionized form in the estuarine receiving water [*Ambient Water Quality Criteria for Ammonia* (saltwater) – 1989, EPA Publication 440/5-88-004, USEPA, 1989]:

$$\text{For salinity} > 10 \text{ ppt: fraction of NH}_3 = \frac{1}{1 + 10^{(pK - pH)}}$$

Where:

$$pK = 9.245 + 0.116*(I) + 0.0324*(298-T) + 0.0415*(P)/(T)$$

I = the molal ionic strength of saltwater = $19.9273*(S)/(1000-1.005109*S)$

S = Salinity (parts per thousand)

T = Temperature in Kelvin

P = Pressure (one atmosphere)

To determine the fraction of un-ionized ammonia, Regional Water Board staff used site-specific pH, salinity, and temperature receiving water data collected at two upstream and six downstream monitoring locations from December 2003 through October 2008. This wide range accounts for some uncertainties resulting from the difficulty of collecting representative receiving water samples. Samples were not collected at low tide, when the pH values may increase due to natural diurnal variability.

To convert the Basin Plan's chronic un-ionized ammonia WQO to an equivalent total ammonia concentration, the median un-ionized ammonia fraction calculated from the data set was used. To convert the Basin Plan's acute un-ionized ammonia WQO to an equivalent total ammonia concentration, the 90th percentile un-ionized ammonia fraction calculated from the data set was used. Using the 90th percentile and median to express the acute and chronic un-ionized ammonia WQOs as equivalent total ammonia concentrations is consistent with USEPA guidance, as expressed by USEPA in *The Metals Translator: Guidance for Calculating a Total Recoverable Limit from a Dissolved Criterion* (EPA Publication Number 823-B-96-007, 1996). The equivalent total ammonia acute and chronic WQCs are 5.7 mg/L and 2.1 mg/L, respectively.

- (b) **RPA Results.** The MEC (2.1 mg/L) exceeds the translated WQO (2.05 mg/L) for this pollutant [calculated in (a), above], demonstrating Reasonable Potential by Trigger 1.
- (c) **Ammonia WQBELs.** To set limitations for toxic pollutants, Basin Plan Section 4.5.5.2 indicates that WQBELs shall be calculated according to the SIP. Section 3.3.20 of the Basin Plan refers to ammonia as a toxic pollutant; therefore, it is consistent with the Basin Plan to use the SIP methodology to determine and establish effluent limitations for ammonia. The total ammonia WQBELs, calculated according to SIP procedures (using a CV of 1.36 with no dilution credit), are an AMEL of 2.0 mg/L and an MDEL of 5.7 mg/L. To calculate these total ammonia limits, some statistical adjustments were made because the Basin Plan's chronic WQO for un-ionized ammonia is based on an annual median, while chronic criteria are usually based on a 4-day average; also, the SIP assumes a monthly sampling frequency of 4 days per month to calculate effluent limitations based on chronic criteria. To use the SIP methodology to calculate effluent limits for a Basin Plan objective that is based on an annual median, an averaging period of 365 days and a monitoring frequency of 30 days per month

(the maximum daily sampling frequency in a month since the averaging period for a chronic criterion is longer than 30 days) were used. These statistical adjustments are supported by USEPA's *Water Quality Criteria; Notice of Availability; 1999 Update of Ambient Water Quality Criteria for Ammonia*, published on December 22, 1999, in the federal Register.

These newly calculated WQBELs are higher than the performance-based limits in the previous permit

- (d) **Compliance Feasible.** Statistical analysis of effluent data for total ammonia collected over the period of November 2003 to July 2008, shows that the 95th percentile (2.1 mg/L) is slightly greater than the AMEL (2.0 mg/L); the 99th percentile (2.1 mg/L) is less than the MDEL (5.7 mg/L); and the mean (0.45 mg/L) is less than the long term average of the projected lognormal distribution of the effluent data set after accounting for effluent variability (0.88 mg/L).

The Discharger was able to comply with more stringent effluent limitations in the previous permit (Order No. R2-2003-0072), over the course of the permit term from November 2003 to August 2008. Based on this comparison, the Regional Water Board concludes that immediate compliance with the WQBELs for total ammonia is feasible.

- (e) **Antibacksliding.** The previous permit included an AMEL of 2.0 mg/L and an MDEL of 4.0 mg/L, as technology-based limitations. The newly calculated limitations are higher than the effluent limitations in the previous Order. To comply with the antibacksliding requirements, this Order retains the previous limits for total ammonia.

e. Effluent Limit Calculations

The following table shows the WQBEL calculations for copper, cyanide, dioxin-TEQ, chlorodibromomethane, dichlorobromomethane, BEHP, and ammonia.

Table F-11. Effluent Limit Calculations

PRIORITY POLLUTANTS	Copper	Cyanide (E-001)	Cyanide (E-002, E-003, E-005)	Dioxin-TEQ	Chlorodibromomethane	Dichlorobromomethane	Total Ammonia (acute)	Total Ammonia (chronic)
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L N	mg/L N
Basis and Criteria type	BP SSOs	BP SSOs	BP SSOs	BP Narrative	CTR HH	CTR HH	Basin Plan Aquatic Life	Basin Plan Aquatic Life
Criteria -Acute	-----	-----	-----	-----	-----	-----	5.67	-----
Criteria -Chronic	-----	-----	-----	-----	-----	-----	-----	2.05
SSO Criteria -Acute	9.4	9.4	9.4	-----	-----	-----	-----	-----
SSO Criteria -Chronic	6.0	2.9	2.9	-----	-----	-----	-----	-----
Water Effects ratio (WER)	2.4	1	1	1	1	1	1	1
Lowest WQO	13.0	2.9	2.9	1.4E-08	34	46	5.67	2.05
Site Specific Translator - MDEL	0.64	-----	-----	-----	-----	-----	-----	-----
Site Specific Translator - AMEL	0.46	-----	-----	-----	-----	-----	-----	-----
Dilution Factor (D) (if applicable)	0	3	0	0	0	0	0	0
No. of samples per month	4	4	4	4	4	4	4	30
Aquatic life criteria analysis required? (Y/N)	Y	Y	Y	N	N	N	Y	Y
HH criteria analysis required? (Y/N)	N	Y	Y	Y	Y	Y	N	N
Applicable Acute WQO	15	9.4	9.4	-----	-----	-----	5.67	-----
Applicable Chronic WQO	13	2.9	2.9	-----	-----	-----	-----	2.05
HH criteria	-----	220000	220000	1.4E-08	34	46	-----	-----
Background (Maximum Conc for Aquatic Life calc)	9.9	0.5	0.5	4.8E-08	-----	-----	0.6	0.18
Background (Average Conc for Human Health calc)	-----	0.5	0.5	3.4E-08	0.05	0.05	-----	-----
Is the pollutant on the 303d list (Y/N)?	N	N	N	Y	N	N	N	N
ECA acute	14.7	36	9.4	-----	-----	-----	6	-----
ECA chronic	13.0	10	2.9	-----	-----	-----	-----	2.1
ECA HH	-----	879999	220000	1.4E-08	34	46	-----	-----
No. of data points <10 or at least 80% of data reported non detect? (Y/N)	N	N	N	Y	Y	Y	N	N
Avg of effluent data points	3.8	3.0	3.0	-----	-----	-----	0.45	0.45
Std Dev of effluent data points	1.9	2.9	2.9	-----	-----	-----	0.61	0.61
CV calculated	0.50	1.0	1.0	N/A	N/A	N/A	1.36	1.36
CV (Selected) - Final	0.50	1.0	1.0	0.6	0.6	0.6	1.36	1.36
ECA acute mult99	0.37	0.21	0.21	-----	-----	-----	0.156	-----
ECA chronic mult99	0.58	0.38	0.38	-----	-----	-----	-----	0.849
LTA acute	5.4	7.5	1.9	-----	-----	-----	0.9	-----
LTA chronic	8	3.8	1.1	-----	-----	-----	-----	1.74
minimum of LTAs	5.4	3.8	1.1	-----	-----	-----	0.88	1.74
AMEL mult95	1.5	1.9	1.9	1.6	1.6	1.6	2.28	-----
MDEL mult99	2.7	4.8	4.8	3.1	3.1	3.1	6.41	-----
AMEL (aq life)	8	7.4	2.1	-----	-----	-----	2.02	-----
MDEL (aq life)	15	18.4	5.3	-----	-----	-----	5.67	-----
MDEL/AMEL Multiplier	1.85	2.50	2.50	2.01	2.01	2.01	2.81	-----
AMEL (human hlth)	-----	879999	220000	0.000	34.000	46.000	-----	-----
MDEL (human hlth)	-----	2202700	550676	0.000	68.210	92.285	-----	-----
minimum of AMEL for Aq. life vs HH	8	7.36	2.11	0.0	34.0	46.0	2	-----
minimum of MDEL for Aq. Life vs HH	15	18.42	5.29	0.0	68.2	92.3	6	-----
Current limit in permit (30-day average)	-----	-----	-----	-----	-----	-----	-----	-----
Current limit in permit (daily)	12.3 (Interim)	32 (Interim)	32 (Interim)	-----	-----	75 (Interim)	-----	-----
Final limit - AMEL	7.9	7.4	2.1	1.4E-08	34	46	2.0	-----
Final limit - MDEL	15	18	5.3	2.8E-08	68	92	5.7	-----
Max Eff Conc (MEC)	9.2	10	10	3.0E-09	44	64	2.1	2.1

5. Whole Effluent Acute Toxicity

- a. **Permit Requirements.** This Order includes effluent limitations for whole effluent acute toxicity that are based on Basin Plan Table 4-3 and are unchanged from the previous permit. Compliance evaluation is based on 96-hour static-renewal bioassays. All bioassays shall be performed according to the USEPA-approved method in 40 CFR Part 136, currently *Methods for Measuring the Acute Toxicity of Effluents and Receiving Water, 5th Edition*.
- b. **Compliance History.** The Discharger's acute toxicity monitoring data show that bioassay results from November 2004 to August 2008 ranged from 95% to 100% survival meeting both the 11-sample 90th percentile limitation and the an 11-sample median limitation. Therefore, there have been no acute toxicity effluent limitation violations.
- c. **Ammonia Toxicity.** If the Discharger can demonstrate to the satisfaction of the Executive Officer that toxicity exceeding limitations in this Order is caused by ammonia, and that the ammonia in the discharge does not exceed ammonia effluent limitations, then such toxicity does not constitute a violation of the effluent limitations for whole effluent toxicity. If ammonia toxicity is verified by a Toxicity Identification Evaluation (TIE), the Discharger may use an adjusted protocol approved by the Executive Officer for routine bioassay testing.

6. Whole Effluent Chronic Toxicity

- a. **Permit Requirements.** This Order includes requirements for chronic toxicity monitoring based on the Basin Plan narrative toxicity objective. This permit includes the Basin Plan narrative toxicity objective as monitoring "triggers," which, when exceeded, initiate accelerated monitoring requirements, including in some circumstances a chronic toxicity reduction evaluation (TRE). These permit requirements for chronic toxicity are consistent with the CTR and SIP requirements.
- b. **Chronic Toxicity Triggers.** This Order includes chronic toxicity triggers of 1.0 chronic toxicity unit (TUC) as a three sample median, and a single sample maximum of 2.0 TUC. These triggers are based on Basin Plan Table 4-5.
- c. **Monitoring History.** The Discharger's chronic toxicity monitoring data from February 2005 through July 2008 show that 10 out of 16 chronic toxicity results exceeded both the single sample maximum and the three sample median effluent "triggers." The Discharger's laboratory conducted Phase I TIE studies to identify the source of toxicity. The studies indicated that the toxicity was related to chelatable constituents and non-polar organics (NPOs), but that the cause could not be isolated. The detected toxicity was reduced in four of six trials by extracting NPOs from the effluent samples using solid-phase extraction (SPE) columns. However, no toxicity was detected when the eluate from the SPE columns was tested. The laboratory also performed toxicity tests of the chelatable process chemicals used by the Discharger (alum, ferric chloride, and polymers). These tests showed that, in the amounts used by the Discharger, only alum was a candidate toxicant; however, suspending the use of alum for three months had no effect on the toxicity detected in effluent samples. The Discharger's laboratory concluded that the cause of toxicity to the test species *Haliotis rufescens* (red abalone) was related

to NPOs, chelatable substances, and other unidentified factors, and that further TIE testing was unlikely to provide more information.

The laboratory then conducted two species screening tests. Of the six species tested, red abalone was the only species that detected toxicity in the Discharger's effluent. The lab therefore concluded that the toxicity was species-specific to red abalone. Based on the results of these species screening tests, the laboratory recommended replacing red abalone with *mysidopsis bahia* (mysid shrimp) as the test species because mysid shrimp is a sensitive and reliable test species, and is an appropriate species for evaluating discharges to estuarine environments such as Suisun Slough, Suisun Marsh, and Ledge-wood Creek. The test results and recommendations are documented in *Phase I Toxicity Identification Evaluation: Identification of the Cause of Fairfield-Suisun Wastewater Treatment Plant Effluent Chronic Toxicity to Red Abalone (Haliotis rufescens)*, prepared by AQUA-Science Environmental Toxicology Consultants of Davis, California, dated June 5, 2007.

- d. **Screening Phase Study.** The Discharger is required to conduct a chronic toxicity screening phase study, as described in Appendix E-1 of the MRP (Attachment E), prior to the next permit issuance.

7. Temperature

Ledge-wood Creek supports warm and cold water habitat beneficial uses; therefore, specific temperature objectives apply. Regional Water Board staff analyzed whether there could be any reasonable potential that Ledge-wood Creek (outfall E-005) could exceed the Basin Plan and Thermal Plan temperature objectives. Effluent temperature data from the Boynton Slough outfall (E-001) and background data from receiving water monitoring point RSW-007 (formerly CR-1) were compared to the Thermal Plan's objectives for new discharges to estuaries (the Thermal Plan's requirements are slightly more stringent than the Basin Plan's requirement, so the analysis focused on the Thermal Plan). The Thermal Plan's objectives are:

- a. The maximum temperature shall not exceed the natural receiving water temperature by more than 20 degrees Fahrenheit (°F).
- b. Elevated temperature waste discharges either individually or combined with other discharges shall not create a zone, defined by water temperatures of more than 1°F above natural receiving water temperature, which exceeds 25 percent of the cross-sectional area of a main river channel at any point.
- c. No discharge shall cause a surface water temperature rise greater than 4°F above the natural temperature of the receiving waters at any time or place.
- d. Thermal waste discharges having a maximum temperature greater than 4°F above the natural temperature of the receiving water are prohibited.
- e. Additional limitations shall be imposed when necessary to assure protection of beneficial uses.

The analysis is based on effluent temperature data from E-001 because there has been no discharge from E-005 yet. The temperature of the E-001 discharge should be representative of that from E-005 since both will undergo the same treatment process. The analysis is further based on background data from RSW-007 because it is the closest background

monitoring point to E-005. RSW-007 is located in Peytonia Slough downstream of E-005 and is already used to evaluate background receiving water conditions.

Effluent temperature data collected between November 2003 and August 2008 were considered (this is the same timeframe used for inorganic pollutants), excluding the maximum and minimum observations of 35.6 and 97.5 °F, which are extreme values that appear to be incorrect. The mean effluent temperature was 69°F and the standard deviation 5°F.

The effluent temperature range (54 to 82°F) was within 20°F of the receiving water temperature range (51 to 74°F). The mean effluent temperature (69°F) was also within 20°F of the mean receiving water temperature (63°F). No independent effluent temperature measured concurrently with receiving water temperature exceeded the receiving water temperature by more than 20°F. Therefore, there is no reasonable potential that the discharge could exceed Thermal Plan objective "a," above.

The discharge would not exceed Thermal Plan objective "b" because Ledgewood Creek is not a main river channel.

Based on data for E-001, it is unlikely that the E-005 discharge will exceed Thermal Plan objective "c." Specifically, the E-001 discharge has not caused any violations of Order R2-2003-0072's narrative receiving water temperature limit in Boynton Slough. E-005 temperature should be identical to E-001's but a direct analysis cannot be performed at this time because data on temperature changes in Ledgewood Creek due to the E-005 discharge are unavailable as no discharge from E-005 has occurred to date.

The E-005 discharge is not a thermal waste as defined by the Thermal Plan and thus objective "d" above does not apply.

Because some of the analyses described above are indirect, we have revised the tentative order to require a study focused on effluent and receiving water temperature to confirm the conclusions.

D. Antidegradation

- 1. Effluent Limitations Retained from Order No. R2-2003-0072.** Limitations for the following parameters are retained and are unchanged from Order No. R2-2003-0072:

- Oil and grease
- Turbidity
- pH
- BOD₅ and TSS
- Total residual chlorine
- 85% removal requirement for BOD and TSS
- Acute toxicity
- Ammonia

Retaining effluent limitations for these parameters in this Order ensures that these limitations are at least as stringent as those in Order No. R2-2003-0072, meeting antidegradation requirements.

2. New Final Effluent Limitations. This Order establishes new final concentration-based limitations for the following parameters that were not contained in Order No. R2-2003-0072:

- Copper
- Cyanide
- Dioxin-TEQ
- Chlorodibromomethane
- Dichlorobromomethane
- Enterococcus Bacteria

The establishment of effluent limitations for these pollutants effectively creates limitations that are more stringent than in Order No. R2-2003-0072, therefore meeting antidegradation requirements. The new final limits for copper and dichlorobromomethane are higher than the interim limits in Order No. R2-2003-0072, which will be discussed below.

3. More Stringent Effluent Limitations. This Order does not establish limits more stringent than those limitations in Order No. R2-2003-0072.

4. Effluent Limitations Not Retained from Order No. R2-2003-0072. This Order does not retain limitations for the following parameters:

- Settleable matter
- Mercury
- Nickel
- Cadmium
- Chromium(VI)
- Bis(2-ethylhexyl)phthalate
- Total coliform bacteria

This Order does not retain effluent limitations for settleable matter. For the Plant, like other facilities achieving secondary or more advanced levels of treatment, compliance with the requirements of 40 CFR 133 and Basin Plan Table 4-2 will also ensure removal of settleable solids to acceptably low levels - below 0.1 mL/L-hr (30-day average) and 0.2 mL/L-hr (daily maximum). Therefore, no degradation of water quality will occur.

Order No. R2-2003-0072 included effluent limitations for cadmium, chromium(VI), and nickel; however, because the RPA showed that discharges from the Plant no longer demonstrate a reasonable potential to cause or contribute to exceedances of applicable water quality criteria for these pollutants, this Order does not retain these limitations from Order No. R2-2003-0072. Elimination of WQBELs for cadmium, chromium(VI), and nickel is consistent with State Water Board Order WQ 2001-16 that incorporates antidegradation requirements.

The previous permit included an interim effluent limitation for mercury, which is not retained by this Order, because discharges of mercury to the San Francisco Bay are now regulated by Regional Water Board Order No. R2-2007-0077, which became effective March 1, 2008. Order No. R2-2007-0077 was established to be consistent with anti-backsliding and antidegradation requirements.

The previous permit included an interim effluent limitation for bis(2-ethylhexyl)phthalate, which is not retained by this Order. The Discharger was able to demonstrate through its Bis(2-ethylhexyl)phthalate Laboratory Analysis Study, that data collected during its permit term prior to the Study were contaminated. Therefore, Regional Water Board staff used only effluent data collected using clean sampling techniques for the RPA. Since the RPA showed that discharges from the Plant no longer demonstrate a reasonable potential to cause or contribute to exceedances of applicable water quality criteria for these pollutants, this Order does not retain these limitations from Order No. R2-2003-0072. Elimination of WQBELs for bis(2-ethylhexyl)phthalate is consistent with State Water Board Order WQ 2001-16 that incorporates antidegradation requirements.

The limitations for total coliform bacteria are not retained because they have been replaced with effluent limitations for enterococcus bacteria, which are equally protective of beneficial uses.

5. Effluent Limitations Higher Than in Order No. R2-2003-0072. Limitations for the following parameters are higher than in the previous Order:

- Copper
- Dichlorobromomethane

The effluent limitations for copper based on site-specific objectives (SSOs) are higher than the interim limitation for copper contained in the previous Order. The standards setting process for the copper SSOs addressed anti-degradation, concluding that water quality would not be degraded (see *Copper Site-Specific Objectives in San Francisco Bay: Proposed Basin Plan Amendment and Draft Staff Report*, June 6, 2007). This conclusion is based on the implementation of a Copper Action Plan. Section VI.C.7 of this Order requires such an action plan.

The effluent limitations for dichlorobromomethane are higher than the interim limitation for dichlorobromomethane contained in the previous Order. The current advanced secondary level of treatment will remain unchanged, and the Discharger plans on implementing UV disinfection, which will add an additional level of treatment. Therefore, degradation of water quality is unlikely.

6. Flow Increase. Consistent with Order No. R2-2006-0045, this Order allows for an increase in the average dry weather discharge rate from 17.5 MGD to 23.7 MGD upon the Discharger meeting the conditions described in section VI.C.2.e of this Order, and upon Executive Officer approval. To support the increase in effluent flow, the Discharger prepared an antidegradation analysis in accordance with guidance contained in State Water Board Administrative Procedures Update No. 90-04. The analysis indicated that the increase in permitted dry weather discharge is necessary to accommodate planned growth within the

Discharger's service area and is otherwise consistent with federal and State antidegradation policies. The increased discharge will have no measurable effect on the water quality of Suisun Slough, Grizzly Bay, Suisun Bay, or other segments of greater San Francisco Bay.

The Regional Water Board has determined that the increase in effluent flow will be consistent with applicable antidegradation requirements of State Water Board Resolution No. 68-16, as well as USEPA policy established at 40 CFR 131.12. In accordance with State Water Board Resolution No. 68-16 and USEPA policy regarding antidegradation, water quality is to be maintained where water quality exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation, unless the Regional Water Board finds:

1. That allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located,
2. That applicable water quality criteria and objectives shall be achieved,
3. That existing beneficial uses of the receiving water will be fully protected, and
4. That the highest statutory and regulatory requirements for point source discharges to the receiving water are being achieved; and that all cost-effective and reasonable best management practices for non-point source discharges to the receiving water are being achieved.

As described above, the expansion of the Plant is necessary to support growth within its service areas. Effluent limitations and specifications contained in the Order will assure that applicable water quality criteria and objectives of the receiving waters are being achieved, and that the beneficial uses of these receiving waters are being fully protected.

Through its issuance of this NPDES permit, the Regional Water Board continues to implement the highest statutory and regulatory requirements applicable to such discharges pursuant to the federal Clean Water Act and the California Water Code and regulations implementing those statutes.

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

Receiving water limitations are retained from Order No. R2-2003-0072 and reflect applicable water quality standards from the Basin Plan.

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

The principal purposes of a monitoring and reporting program by a discharger are to:

- document compliance with waste discharge requirements and prohibitions established by the Regional Water Board;
- facilitate self-policing by the discharger in the prevention and abatement of pollution arising from waste discharge;
- develop or assist in the development of limitations, discharge prohibitions, national standards of performance, pretreatment and toxicity standards, and other standards; and

- prepare water and wastewater quality inventories.

The Monitoring and Reporting Program (MRP) is a standard requirement in almost all NPDES permits the Regional Water Board issues, including this Order. It contains definitions of terms, specifies general sampling and analytical protocols, and sets out requirements for reporting of spills, violations, and routine monitoring data in accordance with NPDES regulations, the CWC, and Regional Water Board policies. The MRP also defines the sampling stations and frequency, the pollutants to be monitored, and additional reporting requirements. Pollutants to be monitored include all parameters for which effluent limitations are specified. Monitoring for additional constituents, for which no effluent limitations are established, is also required to provide data for future RPAs.

A. Influent Monitoring

Influent monitoring requirements for BOD₅ and TSS allow determination of compliance with this Order's 85 percent removal requirement. Influent flow monitoring requirements are retained from the previous permit.

B. Effluent Monitoring

The MRP retains most effluent monitoring requirements from the previous permit. Changes in effluent monitoring at EFF-001-D are summarized as follows.

- Monitoring for settleable matter is no longer required because the effluent limitation for this parameter is not retained in this Order.
- Monthly routine monitoring for cadmium, chromium(VI), zinc, and lead is no longer required because these pollutants no longer demonstrate reasonable potential. Monthly monitoring for mercury is no longer required because the discharge of mercury is now regulated by Regional Water Board Order No. R2-2007-0077.
- This Order requires routine effluent monitoring for copper, cyanide, dioxin-TEQ, chlorodibromomethane, dichlorobromomethane, and ammonia (priority toxic pollutants with effluent limitations established by this Order). Monitoring for all other priority toxic pollutants is to be conducted in accordance with methods described in the August 6, 2001, Letter.
- Monitoring for cyanide is required at E-001 and E-005, at a point after full treatment and dechlorination, and prior to contact with Boynton Slough.
- Monitoring for enterococcus bacteria is required to determine compliance with newly established limitations for enterococcus bacteria.

Effluent monitoring requirements at E-001, E-002, E-003, and E-005 are retained from Order No. R2-2003-0072, as amended by Order No. R2-2006-0045.

C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Monthly 96-hour bioassay testing is required at E-001 or E-005, to demonstrate compliance with the effluent limitation for acute toxicity.

2. **Chronic Toxicity.** Chronic whole effluent toxicity testing is required at E-001 or E-005, once per quarter, in order to demonstrate compliance with the Basin Plan's narrative toxicity objective.

D. Reclamation Monitoring Requirements

See Reclamation Order No. 91-147.

E. Receiving Water Monitoring

Most receiving water monitoring requirements are retained from the previous permit. This Order establishes new monitoring locations in Ledge Creek to characterize receiving water conditions for the new discharge at Discharge Point 005. Monitoring requirements for pH, temperature, salinity, and ammonia in receiving waters are required for determination of site-specific ammonia WQCs. Suisun Marsh is 303(d) listed for metals, low dissolved oxygen, salinity, and nutrients. Receiving water monitoring for these parameters is required to monitor the status of impairment in the receiving waters. Monitoring requirements for turbidity, specific conductivity, chlorophyll-a, and water depth in receiving waters have not been retained.

F. Other Monitoring Requirements

1. **Pretreatment Requirements.** Pretreatment monitoring requirements for the influent, effluent, and biosolids are retained from the previous permit and are required to assess compliance with the Discharger's USEPA approved pretreatment program.
2. **Sludge Monitoring.** Sludge monitoring is required pursuant to 40 CFR Part 503.

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions (Provision VI.A)

Standard Provisions, which in accordance with 40 CFR 122.41 and 122.42 apply to all NPDES discharges and must be included in every NPDES permit, are provided in Attachments D and G of this Order. The Discharger must comply with all standard provisions and with those additional conditions that apply under 40 CFR 122.42.

40 CFR 122.41(a)(1) and (b) through (n) establish conditions that apply to all state-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. Section 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with section 123.25, this Order omits federal conditions that address enforcement authority specified in sections 122.41(j)(5) and (k)(2) because the enforcement authority under CWC is more stringent. In lieu of these conditions, this Order incorporates by reference CWC section 13387(e).

B. Monitoring and Reporting Requirements (Provision VI.B)

The Discharger is required to monitor the permitted discharges in order to evaluate compliance with permit conditions. Monitoring requirements are contained in the MRP (Attachment E) and

Standard Provisions and Self-Monitoring Program (SMP), Part A (Attachment G). This provision requires compliance with these documents and is based on 40 CFR 122.63 and CWC sections 13267 and 13383. SMP, Part A, contains standard requirements in almost all NPDES permits issued by the Regional Water Board, including this Order. They contain definitions of terms, specify general sampling and analytical protocols, and set out requirements for reporting spills, violations, and routine monitoring data in accordance with NPDES regulations, the CWC, and Regional Water Board policies. The MRP (Attachment E) contains a sampling program specific for the Plant. It defines sampling stations and frequencies, the pollutants to be monitored, and additional reporting requirements. Pollutants to be monitored include all parameters for which effluent limitations are specified. Monitoring for additional constituents, for which no effluent limitations are established, is also required to provide data for future RPAs.

C. Special Provisions (Provision VI.C)

1. Reopener Provisions

These provisions are based on 40 CFR 123 and allow modification of this Order and its effluent limitations as necessary in response to updated WQOs that may be established in the future and other circumstances.

2. Special Studies and Additional Monitoring Requirements

- a. Effluent Characterization Study: This Order does not include effluent limitations for constituents addressed in the August 6, 2001, Letter that do not demonstrate Reasonable Potential, but this provision requires the Discharger to continue monitoring for these pollutants as described in the August 6, 2001, Letter and as specified in the MRP. If concentrations of these constituents increase significantly, the Discharger is required to investigate the source of the increases and establish remedial measures if the increases result in reasonable potential to cause or contribute to an excursion above the applicable WQOs. This provision is based on the Basin Plan and the SIP.
- b. Ambient Background Receiving Water Study: This provision is based on the Basin Plan, the SIP, and the August 6, 2001, Letter for priority pollutant monitoring. As indicated in this Order, this requirement may be met by participating in a collaborative study.
- c. Diurnal Ammonia Study: This provision is needed to characterize diurnal variability throughout the day of receiving water quality parameters (pH, salinity, hardness, temperature, dissolved oxygen, and ammonia). This information will be used to confirm whether the ammonia limits are sufficiently protected. As indicated in this Order, this requirement includes submittal of a study plan, implementation of the study plan, and a final report.
- d. Updated Technical Report on Recycled Water Use and Discharge Impacts on Beneficial Uses: This provision is needed to update our understanding of any impacts of the existing and planned discharges on Boynton Slough and Ledge Wood Creek, and to provide a basis for granting exceptions to Basin Plan prohibitions in future permit reissuances. This requirement includes submittal of a study plan, implementation of the study plan, and submittal of a final report.

- e. Ledgewood Creek Temperature Study: This study is required to confirm the results of the RPA for temperature. Some of the analysis was indirect due a lack of data on discharges from E-005. Since the Discharger plans to use E-005 only in the case of high wet-weather flows that exceed the capacity of E-001, opportunities to collect representative data may be limited. The Discharger shall propose a study plan that entails studying temperature impacts to the receiving water to the extent possible given the discharge frequency from E-005. It will not be a violation of this Order if data collection is limited due to low discharge frequency from E-005 (or if no data is collected because no discharge occurs). Since any discharges from E-005 are likely to occur during normally colder wet weather months, the data collected may likely not represent year-round receiving water conditions. The Regional Water Board shall take the amount of data collected into account when analyzing reasonable potential for temperature at the next permit reissuance.
- f. Optional Mass Offset Plan: This option is provided to encourage the Discharger to further implement aggressive reduction of mass loads to San Francisco Bay. If the Discharger wishes to pursue a mass offset program, a mass offset plan for reducing 303(d)-listed pollutants needs to be submitted for Regional Water Board approval. The Regional Water Board may consider any proposed mass offset plan and amend this Order accordingly.
- g. Optional Site-Specific Translator Study: This option is provided to encourage the Discharger to continue to collect receiving water data to augment the current set used to develop site-specific translators to ensure that the translators reflect actual, current site specific conditions.
- h. Dry Weather Flow Capacity Analysis: This provision is required to support the Discharger's anticipated Plant expansion and the construction of a new outfall to Ledgewood Creek. The Discharger has previously submitted an Environmental Impact Report (EIR) and an Antidegradation Analysis to the Regional Water Board for consideration. The outfall construction was completed in August 2008, and the treatment plant expansion is expected to be complete by September 2009. This provision requires the Discharger to submit documentation that demonstrates that actual treatment capacity once completed is 23.7 MGD; certification that the Plant facilities have been completed as designed and are available to use; and updates to the contingency plan and the operations and maintenance manual. Upon Executive Officer approval of these remaining documents, the permitted dry weather flow will increase from 17.5 MGD to 23.7 MGD.

3. Best Management Practices and Pollution Minimization Program

This provision is based on Basin Plan Chapter 4 and SIP Section 2.4.5.

4. Construction, Operation, and Maintenance Specifications

- a. Wastewater Facilities, Review and Evaluation, Status Reports: This provision is based on Order No. R2-2003-0072 and the Basin Plan.
- b. Operations and Maintenance Manual, Review and Status Reports: This provision is based on the Basin Plan, the requirements of 40 CFR 122, and Order No. R2-2003-0072.

- c. Contingency Plan, Review and Status Reports: This provision is based on the Basin Plan, the requirements of 40 CFR 122, and Order No. R2-2003-0072. See Section VI.C.4.c of this Order for specific requirements.

5. Special Provisions for Municipal Facilities (POTWs Only)

- a. Pretreatment Program: This provision is based on 40 CFR 403 and is carried over from the previous permit.
- b. Sludge Management Practices Requirements: This provision is based on Basin Plan Chapter 4, and 40 CFR §§257 and 503, and the previous permit.
- c. Sanitary Sewer Overflows and Sewer System Management Plan: This provision is to explain this Order's requirements as they relate to the Discharger's conveyance system, and to promote consistency with the State Water Board's Statewide General Waste Discharge Requirements for Sanitary Sewer Overflows and its associated Monitoring and Reporting Program (Order No. 2006-0003-DWQ).

6. Compliance Schedule

The compliance schedule and the requirement to submit reports on further measures to reduce concentrations of dioxin-TEQ to ensure compliance with final limits are based on State Water Board Resolution No. 2008-0025, *Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits*, which was approved by the U.S. EPA on August 27, 2008. This Order includes a compliance schedule and discharge specifications for dioxin-TEQ.

A maximum compliance schedule is reasonable for dioxin-TEQ because of the considerable uncertainty in determining effective measures (e.g., pollution prevention, treatment upgrades) that should be implemented to ensure compliance with final limitations. In the Regional Water Board's view, it is appropriate to allow the Discharger sufficient time to explore source control measures before requiring it to propose further actions, such as treatment plant upgrades, that are likely to be much more costly. This approach is supported by the Basin Plan (section 4.13), which states, "In general, it is often more economical to reduce overall pollutant loading into treatment systems than to install complex and expensive technology at the plant."

7. Copper Action Plan

This Order requires the Discharger to implement monitoring and surveillance, pretreatment, source control, and pollution prevention for copper in accordance with the Basin Plan. The Basin Plan contains site-specific water quality objectives for copper in all segments of San Francisco Bay. The water quality objectives are 6.0 µg/L dissolved copper as a 4-day average, and 9.4 µg/L dissolved copper as a 1-hour average. The Basin Plan also requires an implementation plan to ensure no degradation of water quality.

8. Cyanide Action Plan

The Basin Plan requires a Cyanide Action Plan to ensure compliance with antidegradation policies. The Order requires the Discharger to implement monitoring and surveillance, pretreatment, source control, and pollution prevention for cyanide in accordance with Regional Water Board letter dated August 8, 2008, entitled, *Alternate Cyanide Effluent Limitations Effective, Requirement for Cyanide Action Plan, and Requirement for Influent Monitoring*. Task 1 of the letter requires the Discharger to submit an inventory of potential contributors of cyanide to the treatment plant (e.g., metal plating operations, hazardous waste recycling, etc.). Task 2 of the letter requires implementation of the Cyanide Action Plan Task 3 requires the Discharger to report on the implementation status.

VIII. PUBLIC PARTICIPATION

The Regional Water Board is considering the issuance of Waste Discharge Requirements (WDRs) that will serve as an NPDES permit for the Plant. As a step in the WDR adoption process, the Regional Water Board developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional Water Board notified the Dischargers and interested agencies and persons of its intent to prescribe WDRs for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through the Vallejo Times-Herald.

B. Written Comments

Staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments must be submitted either in person or by mail to the attention of Adrienne Miller at the Regional Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the Regional Water Board, written comments must be received at the Regional Water Board offices by 5:00 p.m. on **March 2, 2009**.

C. Public Hearing

The Regional Water Board will hold a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date: April 8, 2009
Time: 9:00 am
Location: Elihu Harris State Office Building
1515 Clay Street, 1st Floor Auditorium
Oakland, CA 94612

Contact: Adrienne Miller, (510) 622-2415, email admiller@waterboards.ca.gov

Interested persons are invited to attend. At the public hearing, the Regional Water Board will hear testimony, if any, pertinent to the discharge, WDRs, and permit. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

Dates and venues may change. The Regional Water Board Web address is <http://www.waterboards.ca.gov/sanfranciscobay> where one can access the current agenda for changes in dates and locations.

D. Waste Discharge Requirements Petitions

Any aggrieved person may petition the State Water Resources Control Board to review the decision of the Regional Water Board regarding the final WDRs. The petition must be submitted within 30 days of the Regional Water Board's action to the following address:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

E. Information and Copying

The Report of Waste Discharge (permit application), related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., except from noon to 1:00 p.m., Monday through Friday. Copying of documents may be arranged through the Regional Water Board by calling 510-622-2300.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding these WDRs and this NPDES permit should contact the Regional Water Board, reference the Fairfield-Suisun Sewer District Wastewater Plant, and provide a name, address, and phone number.

G. Additional Information

Requests for additional information or questions regarding this Order should be directed to Adrienne Miller at 510-622-2415 (e-mail at ADMiller@waterboards.ca.gov).

ATTACHMENT H – PRETREATMENT REQUIREMENTS

Pretreatment Program Provisions

1. The Discharger shall implement all pretreatment requirements contained in 40 CFR 403, as amended. The Discharger shall be subject to enforcement actions, penalties, and fines as provided in the Clean Water Act (33 USC 1351 et seq.), as amended. The Discharger shall implement and enforce its Approved Pretreatment Program or modified Pretreatment Program as directed by the Board's Executive Officer or the USEPA. The USEPA and/or the State may initiate enforcement action against an industrial user for noncompliance with applicable standards and requirements as provided in the Clean Water Act.
2. The Discharger shall enforce the requirements promulgated under Sections 307(b), 307(c), 307(d) and 402(b) of the Clean Water Act. The Discharger shall cause industrial users subject to federal Categorical Standards to achieve compliance no later than the date specified in those requirements or, in the case of a new industrial user, upon commencement of the discharge.
3. The Discharger shall perform the pretreatment functions as required in 40 CFR Part 403 and amendments or modifications thereto including, but not limited to:
 - a. Implement the necessary legal authorities to fully implement the pretreatment regulations as provided in 40 CFR 403.8(f)(1);
 - b. Implement the programmatic functions as provided in 40 CFR 403.8(f)(2);
 - c. Publish an annual list of industrial users in significant noncompliance as provided per 40 CFR 403.8(f)(2)(vii);
 - d. Provide for the requisite funding and personnel to implement the pretreatment program as provided in 40 CFR 403.8(f)(3); and
 - e. Enforce the national pretreatment standards for prohibited discharges and categorical standards as provided in 40 CFR 403.5 and 403.6, respectively.
4. The Discharger shall submit annually a report to USEPA Region 9, the State Board and the Regional Water Board describing its pretreatment program activities over the previous twelve months. In the event that the Discharger is not in compliance with any conditions or requirements of the Pretreatment Program, the Discharger shall also include the reasons for noncompliance and a plan and schedule for achieving compliance. The report shall contain, but is not limited to, the information specified in Appendix A entitled, "Requirements for Pretreatment Annual Reports," which is made a part of this Order. The annual report is due on the last day of February each year.
5. The Discharger shall submit semiannual pretreatment reports to USEPA Region 9, the State Board and the Board describing the status of its significant industrial users (SIUs). The report shall contain, but not is limited to, the information specified in Appendix B entitled, "Requirements for Semiannual Pretreatment Reports," which is made part of this Order. The semiannual reports are due July 31st (for the period January through June) and January 31st (for the period July through December) of each year. The Executive Officer may exempt a Discharger from the semiannual reporting requirements on a case by case basis subject to State Board and USEPA's comment and approval.

6. The Discharger may combine the annual pretreatment report with the semiannual pretreatment report (for the July through December reporting period). The combined report shall contain all of the information requested in Appendices A and B and will be due on January 31st of each year.

The Discharger shall conduct the monitoring of its treatment plant's influent, effluent, and sludge as described in Appendix C entitled, "Requirements for Influent, Effluent and Sludge Monitoring," which is made part of this Order. The results of the sampling and analysis, along with a discussion of any trends, shall be submitted in the semiannual reports. A tabulation of the data shall be included in the annual pretreatment report. The Executive Officer may require more or less frequent monitoring on a case by case basis.

APPENDIX A

REQUIREMENTS FOR PRETREATMENT ANNUAL REPORTS

The Pretreatment Annual Report is due each year on the last day of February. [If the annual report is combined with the semiannual report (for the July through December period) the submittal deadline is January 31st of each year.] The purpose of the Annual Report is 1) to describe the status of the Publicly Owned Treatment Works (POTW) pretreatment program and 2) to report on the effectiveness of the program, as determined by comparing the results of the preceding year's program implementation. The report shall contain at a minimum, but is not limited to, the following information:

1. Cover Sheet

The cover sheet must contain the name(s) and National Pollutant Discharge Elimination System (NPDES) permit number(s) of those POTWs that are part of the Pretreatment Program. Additionally, the cover sheet must include: the name, address and telephone number of a pretreatment contact person; the period covered in the report; a statement of truthfulness; and the dated signature of a principal executive officer, ranking elected official, or other duly authorized employee who is responsible for overall operation of the POTW (40 CFR 403.12(j)).

2. Introduction

The Introduction shall include any pertinent background information related to the Discharger, the POTW and/or the industrial user base of the area. Also, this section shall include an update on the status of any Pretreatment Compliance Inspection (PCI) tasks, Pretreatment Performance Evaluation tasks, Pretreatment Compliance Audit (PCA) tasks, Cleanup and Abatement Order (CAO) tasks, or other pretreatment-related enforcement actions required by the Regional Water Board or the USEPA. A more specific discussion shall be included in the section entitled, "Program Changes."

3. Definitions

This section shall contain a list of key terms and their definitions that the Discharger uses to describe or characterize elements of its pretreatment program.

4. Discussion of Upset, Interference and Pass Through

This section shall include a discussion of Upset, Interference or Pass Through incidents, if any, at the POTW(s) that the Discharger knows of or suspects were caused by industrial discharges. Each incident shall be described, at a minimum, consisting of the following information:

- a. a description of what occurred;
- b. a description of what was done to identify the source;
- c. the name and address of the IU responsible;
- d. the reason(s) why the incident occurred;
- e. a description of the corrective actions taken; and
- f. an examination of the local and federal discharge limits and requirements for the purposes of determining whether any additional limits or changes to existing requirements may be necessary to prevent other Upset, Interference or Pass Through incidents.

5. Influent, Effluent and Sludge Monitoring Results

This section shall provide a summary of the analytical results from the "Influent, Effluent and Sludge Monitoring" as specified in Appendix C. The results should be reported in a summary matrix that lists monthly influent and effluent metal results for the reporting year.

A graphical representation of the influent and effluent metal monitoring data for the past five years shall also be provided with a discussion of any trends.

6. Inspection and Sampling Program

This section shall contain at a minimum, but is not limited to, the following information:

- a. Inspections: the number of inspections performed for each type of IU; the criteria for determining the frequency of inspections; the inspection format procedures;
- b. Sampling Events: the number of sampling events performed for each type of IU; the criteria for determining the frequency of sampling; the chain of custody procedures.

7. Enforcement Procedures

This section shall provide information as to when the approved Enforcement Response Plan (ERP) had been formally adopted or last revised. In addition, the date the finalized ERP was submitted to the Regional Water Board shall also be given.

8. federal Categories

This section shall contain a list of all of the federal categories that apply to the Discharger. The specific category shall be listed including the subpart and 40 CFR section that applies. The maximum and average limits for the each category shall be provided. This list shall indicate the number of Categorical Industrial Users (CIUs) per category and the CIUs that are being regulated pursuant to the category. The information and data used to determine the limits for those CIUs for which a combined waste stream formula is applied shall also be provided.

9. Local Standards

This section shall include a table presenting the local limits.

10. Updated List of Regulated SIUs

This section shall contain a complete and updated list of the Discharger's Significant Industrial Users (SIUs), including their names, addresses, and a brief description of the individual SIU's type of business. The list shall include all deletions and additions keyed to the list as submitted in the previous annual report. All deletions shall be briefly explained.

11. Compliance Activities

- a. **Inspection and Sampling Summary:** This section shall contain a summary of all the inspections and sampling activities conducted by the Discharger over the past year to gather information and data regarding the SIUs. The summary shall include:

- (1) the number of inspections and sampling events conducted for each SIU;

- (2) the quarters in which these activities were conducted; and
- (3) the compliance status of each SIU, delineated by quarter, and characterized using all applicable descriptions as given below:
- (4) in consistent compliance;
- (5) in inconsistent compliance;
- (6) in significant noncompliance;
- (7) on a compliance schedule to achieve compliance, (include the date final compliance is required);
- (8) not in compliance and not on a compliance schedule;
- (9) compliance status unknown, and why not.

b. Enforcement Summary: This section shall contain a summary of the compliance and enforcement activities during the past year. The summary shall include the names of all the SIUs affected by the following actions:

- (1) Warning letters or notices of violations regarding SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements. For each notice, indicate whether it was for an infraction of a federal or local standard/limit or requirement.
- (2) Administrative Orders regarding the SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements. For each notice, indicate whether it was for an infraction of a federal or local standard/limit or requirement.
- (3) Civil actions regarding the SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements. For each notice, indicate whether it was for an infraction of a federal or local standard/limit or requirement.
- (4) Criminal actions regarding the SIUs' apparent noncompliance with or violation of any federal pretreatment categorical standards and/or requirements, or local limits and/or requirements. For each notice, indicate whether it was for an infraction of a federal or local standard/limit or requirement.
- (5) Assessment of monetary penalties. Identify the amount of penalty in each case and reason for assessing the penalty.
- (6) Order to restrict/suspend discharge to the POTW.
- (7) Order to disconnect the discharge from entering the POTW.

12. Baseline Monitoring Report Update

This section shall provide a list of CIUs that have been added to the pretreatment program since the last annual report. This list of new CIUs shall summarize the status of the respective Baseline Monitoring Reports (BMR). The BMR must contain all of the information specified in 40 CFR 403.12(b). For each of the new CIUs, the summary shall indicate when the BMR was due; when the CIU was notified by the POTW of this requirement; when the CIU submitted the report; and/or when the report is due.

13. Pretreatment Program Changes

This section shall contain a description of any significant changes in the Pretreatment Program during the past year including, but not limited to: legal authority, local limits, monitoring/ inspection program and frequency, enforcement protocol, program's administrative structure, staffing level,

resource requirements and funding mechanism. If the manager of the pretreatment program changes, a revised organizational chart shall be included. If any element(s) of the program is in the process of being modified, this intention shall also be indicated.

14) Pretreatment Program Budget

This section shall present the budget spent on the Pretreatment Program. The budget, either by the calendar or fiscal year, shall show the amounts spent on personnel, equipment, chemical analyses and any other appropriate categories. A brief discussion of the source(s) of funding shall be provided.

15) Public Participation Summary

This section shall include a copy of the public notice as required in 40 CFR 403.8(f)(2)(vii). If a notice was not published, the reason shall be stated.

16) Sludge Storage and Disposal Practice

This section shall have a description of how the treated sludge is stored and ultimately disposed. The sludge storage area, if one is used, shall be described in detail. Its location, a description of the containment features and the sludge handling procedures shall be included.

17) PCS Data Entry Form

The annual report shall include the PCS Data Entry Form. This form shall summarize the enforcement actions taken against SIUs in the past year. This form shall include the following information: the POTW name, NPDES Permit number, period covered by the report, the number of SIUs in significant noncompliance (SNC) that are on a pretreatment compliance schedule, the number of notices of violation and administrative orders issued against SIUs, the number of civil and criminal judicial actions against SIUs, the number of SIUs that have been published as a result of being in SNC, and the number of SIUs from which penalties have been collected.

18) Other Subjects

Other information related to the Pretreatment Program that does not fit into one of the above categories should be included in this section.

Signed copies of the reports shall be submitted to the Regional Administrator at USEPA, the State Water Resources Control Board and the Regional Water Board at the following addresses:

Regional Administrator
United States Environmental Protection Agency
Region 9, Mail Code: WTR-7
Clean Water Act Compliance Office
Water Division
75 Hawthorne Street
San Francisco, CA 94105

Pretreatment Program Manager
Regulatory Unit
State Water Resources Control Board
Division of Water Quality
1001 I Street
Sacramento, CA 95814

Pretreatment Coordinator
NPDES Permits Division
SF Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

APPENDIX B: REQUIREMENTS FOR SEMIANNUAL PRETREATMENT REPORTS

The semiannual pretreatment reports are due on July 31st (for pretreatment program activities conducted from January through June) and January 31st (for pretreatment activities conducted from July through December) of each year, unless an exception has been granted by the Board's Executive Officer. The semiannual reports shall contain, at a minimum, but is not limited to, the following information:

1. Influent, Effluent and Sludge Monitoring

The influent, effluent and sludge monitoring results shall be included in the report. The analytical laboratory report shall also be included, with the QA/QC data validation provided upon request. A description of the sampling procedures and a discussion of the results shall be given. (Please see Appendix C for specific detailed requirements.) The contributing source(s) of the parameters that exceed NPDES limits shall be investigated and discussed. In addition, a brief discussion of the contributing source(s) of all organic compounds identified shall be provided.

The Discharger has the option to submit all monitoring results via an electronic reporting format approved by the Executive Officer. The procedures for submitting the data will be similar to the electronic submittal of the NPDES self-monitoring reports as outlined in the December 17, 1999 Regional Water Board letter, Official Implementation of Electronic Reporting System (ERS). The Discharger shall contact the Regional Water Board's ERS Project Manager for specific details in submitting the monitoring data.

If the monitoring results are submitted electronically, the analytical laboratory reports (along with the QA/QC data validation) should be kept at the discharger's facility.

2. Industrial User Compliance Status

This section shall contain a list of all Significant Industrial Users (SIUs) that were not in consistent compliance with all pretreatment standards/limits or requirements for the reporting period. The compliance status for the previous reporting period shall also be included. Once the SIU has determined to be out of compliance, the SIU shall be included in the report until consistent compliance has been achieved. A brief description detailing the actions that the SIU undertook to come back into compliance shall be provided.

For each SIU on the list, the following information shall be provided:

- a. Indicate if the SIU is subject to federal categorical standards; if so, specify the category including the subpart that applies.
- b. For SIUs subject to federal Categorical Standards, indicate if the violation is of a categorical or local standard.
- c. Indicate the compliance status of the SIU for the two quarters of the reporting period.
- d. For violations/noncompliance occurring in the reporting period, provide (1) the date(s) of violation(s); (2) the parameters and corresponding concentrations exceeding the limits and the discharge limits for these parameters and (3) a brief summary of the noncompliant event(s) and the steps that are being taken to achieve compliance.

3. POTW's Compliance with Pretreatment Program Requirements

This section shall contain a discussion of the Discharger's compliance status with the Pretreatment Program Requirements as indicated in the latest Pretreatment Compliance Audit (PCA) Report, Pretreatment Compliance Inspection (PCI) Report or Pretreatment Performance Evaluation (PPE) Report. It shall contain a summary of the following information:

- a. Date of latest PCA, PCI or PPE and report.
- b. Date of the Discharger's response.
- c. List of unresolved issues.
- d. Plan and schedule for resolving the remaining issues.

The reports shall be signed by a principal executive officer, ranking elected official, or other duly authorized employee who is responsible for the overall operation of the Publicly Owned Treatment Works (POTW) (40 CFR 403.12(j)). Signed copies of the reports shall be submitted to the Regional Administrator at USEPA, the State Water Resources Control Board and the Regional Water Board at the following addresses:

Regional Administrator
United States Environmental Protection Agency
Region 9, Mail Code: WTR-7
Clean Water Act Compliance Office
Water Division
75 Hawthorne Street
San Francisco, CA 94105

Pretreatment Program Manager
Regulatory Unit
State Water Resources Control Board
Division of Water Quality
1001 I Street
Sacramento, CA 95814

Pretreatment Coordinator
NPDES Permits Division
SF Bay Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

APPENDIX C

REQUIREMENTS FOR INFLUENT, EFFLUENT AND SLUDGE MONITORING

The Discharger shall conduct sampling of its treatment plant's influent, effluent and sludge at the frequency as shown in Tables E-4 to E-6 of the Self-Monitoring Program (SMP).

The monitoring and reporting requirements of the POTW's Pretreatment Program are in addition to those specified in Table 1 of the SMP. Any subsequent modifications of the requirements specified in Table 1 shall be adhered to and shall not affect the requirements described in this Appendix unless written notice from the Regional Water Board is received. When sampling periods coincide, one set of test results, reported separately, may be used for those parameters that are required to be monitored by both Table 1 and the Pretreatment Program. The Pretreatment Program monitoring reports shall be sent to the Pretreatment Program Coordinator.

1. Influent and Effluent Monitoring

The Discharger shall monitor for the parameters using the required test methods listed in Tables E-4 to E-6 of the SMP. Any test method substitutions must have received prior written Regional Water Board approval. Influent and Effluent sampling locations shall be the same as those sites specified in the SMP.

The influent and effluent sampled should be taken during the same 24-hour period. All samples must be representative of daily operations. A grab sample shall be used for volatile organic compounds, cyanide and phenol. In addition, any samples for oil and grease, polychlorinated biphenyls, dioxins/furans, and polynuclear aromatic hydrocarbons shall be grab samples. For all other pollutants, 24-hour composite samples must be obtained through flow-proportioned composite sampling. Sampling and analysis shall be performed in accordance with the techniques prescribed in 40 CFR Part 136 and amendments thereto. For effluent monitoring, the reporting limits for the individual parameters shall be at or below the minimum levels (MLs) as stated in the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (2000) [also known as the State Implementation Policy (SIP)]; any revisions to the MLs shall be adhered to. If a parameter does not have a stated minimum level, then the Discharger shall conduct the analysis using the lowest commercially available and reasonably achievable detection levels.

The following standardized report format should be used for submittal of the influent and effluent monitoring report. A similar structured format may be used but will be subject to Regional Water Board approval. The monitoring reports shall be submitted with the Semiannual Reports.

- a. Sampling Procedures – This section shall include a brief discussion of the sample locations, collection times, how the sample was collected (i.e., direct collection using vials or bottles, or other types of collection using devices such as automatic samplers, buckets, or beakers), types of containers used, storage procedures and holding times. Include description of prechlorination and chlorination/dechlorination practices during the sampling periods.
- b. Method of Sampling Dechlorination – A brief description of the sample dechlorination method prior to analysis shall be provided.

- c. Sample Compositing – The manner in which samples are composited shall be described. If the compositing procedure is different from the test method specifications, a reason for the variation shall be provided.
- d. Data Validation – All quality assurance/quality control (QA/QC) methods to be used shall be discussed and summarized. These methods include, but are not limited to, spike samples, split samples, blanks and standards. Ways in which the QA/QC data will be used to qualify the analytical test results shall be identified. A certification statement shall be submitted with this discussion stating that the laboratory QA/QC validation data has been reviewed and has met the laboratory acceptance criteria. The QA/QC validation data shall be submitted to the Regional Water Board upon request.
- e. A tabulation of the test results shall be provided.
- f. Discussion of Results – The report shall include a complete discussion of the test results. If any pollutants are detected in sufficient concentration to upset, interfere or pass through plant operations, the type of pollutant(s) and potential source(s) shall be noted, along with a plan of action to control, eliminate, and/or monitor the pollutant(s). Any apparent generation and/or destruction of pollutants attributable to chlorination/dechlorination sampling and analysis practices shall be noted.

2. Sludge Monitoring

Sludge should be sampled in the same 24-hour period during which the influent and effluent are sampled except as noted in (C) below. The same parameters required for influent and effluent analysis shall be included in the sludge analysis. The sludge analyzed shall be a composite sample of the sludge for final disposal consisting of:

- a. Sludge lagoons – 20 grab samples collected at representative equidistant intervals (grid pattern) and composited as a single grab, or
- b. Dried stockpile – 20 grab samples collected at various representative locations and depths and composited as a single grab, or
- c. Dewatered sludge- daily composite of 4 representative grab samples each day for 5 days taken at equal intervals during the daily operating shift taken from a) the dewatering units or b) from each truckload, and shall be combined into a single 5-day composite.

The USEPA manual, POTW Sludge Sampling and Analysis Guidance Document, August 1989, containing detailed sampling protocols specific to sludge is recommended as a guidance for sampling procedures. The USEPA manual Analytical Methods of the National Sewage Sludge Survey, September 1990, containing detailed analytical protocols specific to sludge, is recommended as a guidance for analytical methods.

In determining if the sludge is a hazardous waste, the Dischargers shall adhere to Article 2, "Criteria for Identifying the Characteristics of Hazardous Waste," and Article 3, "Characteristics of Hazardous Waste," of Title 22, California Code of Regulations, Sections 66261.10 to 66261.24 and all amendments thereto.

Sludge monitoring reports shall be submitted with the appropriate Semiannual Report. The following standardized report format should be used for submittal of the report. A similarly structured form may be used but will be subject to Regional Water Board approval.

- a. Sampling procedures – Include sample locations, collection procedures, types of containers used, storage/refrigeration methods, compositing techniques and holding times. Enclose a map of sample locations if sludge lagoons or stockpiled sludge is sampled.
- b. Data Validation – All quality assurance/quality control (QA/QC) methods to be used shall be discussed and summarized. These methods include, but are not limited to, spike samples, split samples, blanks and standards. Ways in which the QA/QC data will be used to qualify the analytical test results shall be identified. A certification statement shall be submitted with this discussion stating that the laboratory QA/QC validation data has been reviewed and has met the laboratory acceptance criteria. The QA/QC validation data shall be submitted to the Regional Water Board upon request.
- c. Test Results – Tabulate the test results and include the percent solids.
- d. Discussion of Results – The report shall include a complete discussion of test results. If the detected pollutant(s) is reasonably deemed to have an adverse effect on sludge disposal, a plan of action to control, eliminate, and/or monitor the pollutant(s) and the known or potential source(s) shall be included. Any apparent generation and/or destruction of pollutants attributable to chlorination/ dechlorination sampling and analysis practices shall be noted.

The Discharger shall also provide any influent, effluent or sludge monitoring data for nonpriority pollutants that the permittee believes may be causing or contributing to Interference, Pass Through or adversely impacting sludge quality.